

**USE OF SOFT-DECISION OR SUM-PRODUCT INNER CODERS TO
IMPROVE THE PERFORMANCE OF OUTER CODERS**

ABSTRACT

In a receiver, an outer decoder in an inner/outer decoder scheme receives bit error information or bit error probability information from an inner decoder rather than being generated internally by the outer decoder. The inner decoder may be a soft-decision decoder that provides bit error probabilities, or a sum-product decoder that provides bit error information. Thus, unlike conventional outer decoders, the outer decoder does not require a conventional first stage for determining errors in the output bit stream of the inner decoder based on the bits of the output bit stream themselves. A related transmitter uses a sum-product inner decoder in conjunction with an outer decoder.

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